

# Philips – The Innovation Leader in Microcontrollers

November 2004

## LPC2000 Series

The 16/32-bit LPC2000 series is based on a 1.8V ARM7TDMI-S core operating at up to 60 MHz together with a wide range of peripherals including multiple serial interfaces, 10-bit ADC, DAC and external bus options. These controllers are designed for use in a range of applications including industrial control, automotive, medical, connectivity and any other general purpose embedded application requiring high performance and low power consumption in a cost-effective package.

Type	Memory				Timers			Serial interfaces				Analog		I/O pins	Interrupts (Ext) Levels	External Bus Interface	PLL	Max. freq. (MHz)	CPU Voltage	I/O Voltage	Temp. range options	Package	Comments/Special Features
	FLASH	RAM	ISP/IAP	Program Security	# of Timers	PWM	RTC / System Timer / WD	UART	I <sup>2</sup> C	CAN	SPI	ADC (10b) # of channels	DAC (10b) # of channels										
<b>LPC2200 Devices</b>																							
LPC2294	256 K	16 K	Y/Y	✓	4	6 ch.	✓	2	✓	4	2	8	—	112	25(4)/16	✓	✓	60	1.8V	3.3V	J	LQFP144	LPC2214 upgrade w/ 4x CAN, -40 to 105C
LPC2292	256 K	16 K	Y/Y	✓	4	6 ch.	✓	2	✓	2	2	8	—	112	25(4)/16	✓	✓	60	1.8V	3.3V	F	LQFP144	LPC2214 upgrade w/ 2x CAN
LPC2290	—	16 K	—	—	4	6 ch.	✓	2	✓	2	2	8	—	76	25(4)/16	✓	✓	60	1.8V	3.3V	F	LQFP144	ROMless version of LPC2292
LPC2214	256 K	16 K	Y/Y	✓	4	6 ch.	✓	2	✓	—	2	8	—	112	16(4)/16	✓	✓	60	1.8V	3.3V	F	LQFP144	External Bus, 4 Chip Selects, 10-bit SA ADC, 256 K Flash
LPC2212	128 K	16 K	Y/Y	✓	4	6 ch.	✓	2	✓	—	2	8	—	112	16(4)/16	✓	✓	60	1.8V	3.3V	F	LQFP144	128 K Flash version of LPC2214
LPC2210	—	16 K	—	—	4	6 ch.	✓	2	✓	—	2	8	—	76	16(4)/16	✓	✓	60	1.8V	3.3V	F	LQFP144	ROMless version of LPC2214
<b>LPC2100 Devices</b>																							
LPC2194	256 K	16 K	Y/Y	✓	4	6 ch.	✓	2	✓	4	2	4	—	46	25(4)/16	—	✓	60	1.8V	3.3V	J	LQFP64	LPC21x4 upgrade w/ 4x CAN, -40 to +105C
LPC2138	512 K	32 K	Y/Y	✓	4	6 ch.	✓	2	2	—	2	2x8	1	47	22(4)/16	—	✓	60	3.3V	F	LQFP64, HVQFN64	Dual 8 ch. 10-bit ADC, BOD, POR	
LPC2136	256 K	32 K	Y/Y	✓	4	6 ch.	✓	2	2	—	2	2x8	1	47	22(4)/16	—	✓	60	3.3V	F	LQFP64	Dual 8 ch. 10-bit ADC, BOD, POR	
LPC2134	128 K	16 K	Y/Y	✓	4	6 ch.	✓	2	2	—	2	2x8	1	47	22(4)/16	—	✓	60	3.3V	F	LQFP64	Dual 8 ch. 10-bit ADC, BOD, POR	
LPC2132	64 K	16 K	Y/Y	✓	4	6 ch.	✓	2	2	—	2	1	1	47	22(4)/16	—	✓	60	3.3V	F	LQFP64, HVQFN64	Dual 8 ch. 10-bit ADC, BOD, POR	
LPC2131	32 K	8 K	Y/Y	✓	4	6 ch.	✓	2	2	—	2	1	0	47	22(4)/16	—	✓	60	3.3V	F	LQFP64	Dual 8 ch. 10-bit ADC, BOD, POR	
LPC2129	256 K	16 K	Y/Y	✓	4	6 ch.	✓	2	✓	2	2	4	—	46	18(4)/16	—	✓	60	1.8V	3.3V	F	LQFP64	LPC21x4 upgrade w/ 2x CAN
LPC2119	128 K	16 K	Y/Y	✓	4	6 ch.	✓	2	✓	2	2	4	—	46	18(4)/16	—	✓	60	1.8V	3.3V	F	LQFP64	LPC21x4 upgrade w/ 2x CAN
LPC2124	256 K	16 K	Y/Y	✓	4	6 ch.	✓	2	✓	—	2	4	—	46	16(4)/16	—	✓	60	1.8V	3.3V	F	LQFP64, HVQFN64	10-bit SA ADC, 2x SPI and 128 K / 256 K Flash; JTAG; ETM; 5V tol I/O;
LPC2114	128 K	16 K	Y/Y	✓	4	6 ch.	✓	2	✓	—	2	4	—	46	16(4)/16	—	✓	60	1.8V	3.3V	F	LQFP64	10-bit SA ADC, 2x SPI and 128 K / 256 K Flash; JTAG; ETM; 5V tol I/O
LPC2106	128 K	64 K	Y/Y	—	4	6 ch.	✓	2	✓	—	✓	—	—	32	16(3)/16	—	✓	60	1.8V	3.3V	B, F	LQFP48	0 Waitstate exec. from int. Flash; no ext. bus; 5V tolerant I/O
LPC2105	128 K	32 K	Y/Y	—	4	6 ch.	✓	2	✓	—	✓	—	—	32	16(3)/16	—	✓	60	1.8V	3.3V	B	LQFP48	32 K RAM version of LPC2106
LPC2104	128 K	16 K	Y/Y	—	4	6 ch.	✓	2	✓	—	✓	—	—	32	16(3)/16	—	✓	60	1.8V	3.3V	B	LQFP48	16 K RAM version of LPC2106

Note: Reset active low.

# Philips – The Innovation Leader in Microcontrollers

## LPC900 Series

The LPC900 series are 8-pin, 10-pin, 14-pin, 16-pin, 20-pin and 28-pin single-chip microcontrollers designed for applications demanding high-integration, low cost solutions over a wide range of performance requirements. Many system-level functions have been incorporated into this family in order to reduce component count, board space and system cost.

Type	Memory						Timers			Serial interfaces			Analog			I/O pins	Interrupts (Ext) Levels	Clocks/ CPU cycle	Freq. range (MHz) at 3V	Temp. range options	Package	Comments/Special Features
	FLASH / EEPROM Program / Data	EEPROM Data	RAM	ICP / PP	ISP / IAP	Program Security	# of Timers	PWM	RTC / System Timer / W/D	UART	I <sup>2</sup> C	SPI	ADC ch./Res.	DAC ch./Res.	Comparators							
<b>LPC93x Devices</b>																						
P89LPC938	8 K	512 B	768 B	Y/Y	Y/Y	✓	5	CCU	✓	✓	✓	8/10b	—	2	26	15(3)/4	2	0-12	F	TSSOP28 HVQFN28	LPC935 with 10-bit ADC	
P89LPC936	16 K	512 B	768 B	Y/Y	Y/Y	✓	5	CCU	✓	✓	✓	2x4/8b	2x8b	2	26	15(3)/4	2	0-12	F	TSSOP28	LPC935 with 16 K Flash	
P89LPC935	8 K	512 B	768 B	Y/Y	Y/Y	✓	5	CCU	✓	✓	✓	2x4/8b	2x8b	2	26	15(3)/4	2	0-12	F	TSSOP28, PLCC28, HVQFN28	LPC932A1 + two 4-ch 8-bit ADCs / two 8-bit DACs	
P89LPC934	8 K	—	256 B	Y/Y	Y/Y	✓	4	2 ch.	✓	✓	✓	4/8b	2x8b	2	26	15(3)/4	2	0-12	F	TSSOP28	LPC930/931 + 4-ch 8-bit ADCs / two 8-bit DACs	
P89LPC933	4 K	—	256 B	Y/Y	Y/Y	✓	4	2 ch.	✓	✓	✓	4/8b	2x8b	2	26	15(3)/4	2	0-12	F	TSSOP28	LPC930/931 + 4-ch 8-bit ADCs / two 8-bit DACs	
P89LPC932A1	8 K	512 B	768 B	Y/Y	Y/Y	✓	5	CCU	✓	✓	✓	—	—	2	26	15(3)/4	2	0-12	F	TSSOP28, PLCC28, HVQFN28	Dedicated EEPROM; ± 2.5% int. RC osc. (7.3728 MHz) byte erasable Flash 4K / 8K Flash versions of LPC932A1 w/o EEPROM, w/o CCU, w/o XRAM	
P89LPC931	8 K	—	256 B	Y/Y	Y/Y	✓	4	2 ch.	✓	✓	✓	—	—	2	26	13(3)/4	2	0-12	F	TSSOP28	4K / 8K Flash versions of LPC932A1 w/o EEPROM, w/o CCU, w/o XRAM	
P89LPC930	4 K	—	256 B	Y/Y	Y/Y	✓	4	2 ch.	✓	✓	✓	—	—	2	26	13(3)/4	2	0-12	F	TSSOP28	4K / 8K Flash versions of LPC932A1 w/o EEPROM, w/o CCU, w/o XRAM	
<b>LPC92x Devices</b>																						
P89LPC925	8 K	—	256 B	Y/Y	Y/Y	✓	4	2 ch.	✓	✓	—	4/8b	1/8b	2	18	12(3)/4	2	0-18	F	TSSOP20	LPC921/922 + 4-ch 8-bit ADC / 8-bit DAC; runs up to 18 MHz	
P89LPC924	4 K	—	256 B	Y/Y	Y/Y	✓	4	2 ch.	✓	✓	—	4/8b	1/8b	2	18	12(3)/4	2	0-18	F	TSSOP20	LPC921/922 + 4-ch 8-bit ADC / 8-bit DAC; runs up to 18 MHz	
P89LPC922	8 K	—	256 B	Y/Y	Y/Y	✓	4	2 ch.	✓	✓	—	—	—	2	18	12(3)/4	2	0-12	F	TSSOP20	20-pin versions of LPC930/931 w/o SPI; LPC76x pin-comp. upgrade	
P89LPC921	4 K	—	256 B	Y/Y	Y/Y	✓	4	2 ch.	✓	✓	—	—	—	2	18	12(3)/4	2	0-12	F	TSSOP20	20-pin versions of LPC930/931 w/o SPI; LPC76x pin-comp. upgrade	
P89LPC920	2 K	—	256 B	Y/Y	Y/Y	✓	4	2 ch.	✓	✓	—	—	—	2	18	12(3)/4	2	0-12	F	TSSOP20, DIP20	2K Flash version of 921/922	
<b>LPC91x Devices</b>																						
P89LPC917	2 K	—	256 B	Y/-	-/-	✓	4	2 ch.	✓	✓	—	4/8b	1/8b	2	14	13(3)/4	2	0-18	F	TSSOP16	4-ch 8-bit ADC / 8-bit DAC; 2 serial channels; 2-ch 8-bit PWM	
P89LPC916	2 K	—	256 B	Y/-	-/-	✓	4	1 ch.	✓	✓	✓	4/8b	1/8b	2	14	14(2)/4	2	0-18	F	TSSOP16	4-ch 8-bit ADC / 8-bit DAC; 3 serial channels; 1-ch 8-bit PWM	
P89LPC915	2 K	—	256 B	Y/-	-/-	✓	4	1 ch.	✓	✓	—	4/8b	1/8b	2	12	13(3)/4	2	0-18	F	TSSOP14	4-ch 8-bit ADC / 8-bit DAC; 2 serial channels; 1-ch 8-bit PWM	
P89LPC914	1 K	—	128 B	Y/-	-/-	✓	4	1 ch.	✓	✓	—	—	—	2	12	10(1)/4	2	0-IRC	F	TSSOP14	1-ch 8-bit PWM; UART; SPI; 12 I/O pins	
P89LPC913	1 K	—	128 B	Y/-	-/-	✓	4	—	✓	✓	—	—	—	2	12	10(1)/4	2	0-12	F	TSSOP14	UART; SPI; 12 I/O pins; external crystal pins	
P89LPC912	1 K	—	128 B	Y/-	-/-	✓	4	1 ch.	✓	—	✓	—	—	2	12	7(1)/4	2	0-12	F	TSSOP14	1-ch 8-bit PWM; SPI; 12 I/O pins; external crystal pins	
<b>LPC910x Devices</b>																						
P89LPC9107	1 K	—	128 B	Y/-	-/-	✓	4	2 ch.	✓	✓	—	4/8b	1/8b	1	10	9(1)/4	2	0-18	F	TSSOP14	Clock doubler for internal RC OSC	
P89LPC9103	1 K	—	128 B	Y/-	-/-	✓	4	—	✓	✓	—	4/8b	1/8b	1	8	9(1)/4	2	0-18	F	HVSON10	Smallest available package 3 x 3 mm <sup>2</sup>	
P89LPC9102	1 K	—	128 B	Y/-	-/-	✓	4	2 ch.	✓	—	—	4/8b	1/8b	1	8	9(1)/4	2	0-18	F	HVSON10	Smallest available package 3 x 3 mm <sup>2</sup>	
<b>LPC90x Devices</b>																						
P89LPC908	1 K	—	128 B	Y/-	-/-	✓	4	—	✓	✓	—	—	—	1	6	9(1)/4	2	0-IRC	F	SO8	UART; 6 I/O pins	
P89LPC907	1 K	—	128 B	Y/-	-/-	✓	4	—	✓	✓*	—	—	—	1	6	8(1)/4	2	0-IRC	F	SO8	UART (*Transmit function only); 6 I/O pins	
P89LPC906	1 K	—	128 B	Y/-	-/-	✓	4	1 ch.	✓	—	—	—	—	1	6	6(1)/4	2	0-12	F	SO8	1-ch 8-bit PWM; 6 I/O pins; external crystal pins	
P89LPC904	1 K	—	128 B	Y/-	-/-	✓	4	—	✓	✓	—	2/8b	1/8b	2	6	9(1)/4	2	0-12	F	SO8	LPC903 + 2-ch 8-bit ADC / 8-bit DAC and external clock input pin	
P89LPC903	1 K	—	128 B	Y/-	-/-	✓	4	—	✓	✓	—	—	—	2	6	9(1)/4	2	0-IRC	F	SO8	Industry standard pinout; 6 I/O pins; 2 analog comparators; UART	
P89LPC902	1 K	—	128 B	Y/-	-/-	✓	4	—	✓	—	—	—	—	2	6	6(1)/4	2	0-IRC	F	SO8, DIP8	Industry standard pinout; 6 I/O pins; 2 analog comp. 5 ext. interrupt inputs	
P89LPC901	1 K	—	128 B	Y/-	-/-	✓	4	1 ch.	✓	—	—	—	—	1	6	6(1)/4	2	0-12	F	SO8, DIP8	Industry standard pinout; 6 I/O pins; 1-ch 8-bit PWM; external crystal pins	

- Notes:
- LPC900 FLASH EEPROM Features: Program and data (byte) storage, block-/sector-/page-/byte-erasable, 2 ms erase, data read via MOVX instruction (\*no byte-erase for 932).
  - Auxiliary EEPROM Features: Data (byte) storage, page-/byte-erasable, 2 ms erase.
  - Reset active low.

## LPC700 Series

The LPC700 series is based on a high performance 6-clock 80C51 that executes instructions at twice the rate of the standard 80C51. A wide variety of system supervisory functions, serial interfaces and analog options have been incorporated into low profile SO and TSSOP packages in order to reduce component count, board space and system cost. The LPC700 family is designed for applications that demand low voltage, high-integration, and low-cost.

Type	Memory			Timers			Serial interfaces			Analog		I/O pins	Interrupts (Ext) Levels	Program Security	Default Clock Rate	Optional Clock Rate	Reset active-low or-high?	Max. freq. [MHz]	Freq. range (MHz)	Freq. range MHz at 5V	Temp. range options	Package	Comments/Special Features
	OTP / ROM	RAM	ICP / PP	# of Timers	PWM	WD	UART	I <sup>2</sup> C	ADC channels/bits	Comparators													
<b>LPC76x/LPC77x Devices</b>																							
P87LPC779	8 K	128 B	ICP	2	—	✓	✓	✓(bit)	4/8	2	18	13(3)/4	✓	6-clk	12-clk	L	20	0-10	0-20	B, F	TSSOP20	LPC769 upgrade w/ 8 K OTP; addit. 128 B of RAM not supported by emulators.	
P87LPC778	8 K	128 B	ICP	2	✓	✓	✓	✓(bit)	4/8	2	18	13(3)/4	✓	6-clk	12-clk	L	20	0-10	0-20	B, F	TSSOP20	LPC768 upgrade w/ 8 K OTP; addit. 128 B of RAM not supported by emulators.	
P87LPC769	4 K	128 B	ICP	2	—	✓	✓	✓(bit)	4/8	2	18	13(3)/4	✓	6-clk	12-clk	L	20	0-10	0-20	H	SO20	2 AC, BOD, POR, 8KBI's, IRC (6 MHz ± 25%), 4ch 8-bit ADC, 2ch 8-bit DAC	
P87LPC768	4 K	128 B	ICP	2	✓	✓	✓	✓(bit)	4/8	2	18	13(3)/4	✓	6-clk	12-clk	L	20	0-10	0-20	B, F	DIP20, SO20	2 AC, BOD, POR, 8KBI's, IRC (6 MHz ± 25%), 4ch 8-bit ADC, PWM	
P87LPC767	4 K	128 B	ICP	2	—	✓	✓	✓(bit)	4/8	2	18	13(3)/4	✓	6-clk	12-clk	L	20	0-10	0-20	B, F, H	DIP20, SO20	2 AC, BOD, POR, 8KBI's, IRC (6 MHz ± 25%), 4ch 8-bit ADC	
P87LPC764	4 K	128 B	ICP	2	—	✓	✓	✓(bit)	—	2	18	12(3)/4	✓	6-clk	12-clk	L	20	0-10	0-20	B, F	TSSOP20, DIP20, SO20	2 AC, BOD, POR, 8KBI's, IRC (6 MHz ± 10% / ± 25%)	
P87LPC762	2 K	128 B	ICP	2	—	✓	✓	✓(bit)	—	2	18	12(3)/4	✓	6-clk	12-clk	L	20	0-10	0-20	B, F	TSSOP20, DIP20, SO20	2 AC, BOD, POR, 8KBI's, IRC (6 MHz ± 10% / ± 25%)	
P87LPC761	2 K	128 B	ICP	2	—	✓	✓	✓(bit)	—	2	14	11(3)/4	✓	6-clk	12-clk	L	20	0-10	0-20	B	TSSOP16, DIP16	16-pin LPC derivative; ± 2.5% internal RC Oscillator (0-50°C)	
P87LPC760	1 K	128 B	ICP	2	—	✓	✓	✓(bit)	—	2	12	11(3)/4	✓	6-clk	12-clk	L	20	0-10	0-20	B	TSSOP14, DIP14	14-pin LPC derivative; ± 2.5% internal RC Oscillator (0-50°C)	

## 80C51 Family

The Philips 8-bit 80C51 microcontroller family offers a complete product portfolio of Flash, OTP (One Time Programmable), ROM and ROMless devices. Designed for real-time applications, these 80C51 devices are used in broad markets ranging from consumer products and computer peripherals to automotive systems.

Type	Memory					Timers			Serial interfaces			I/O pins	Interrupts (Ext) Levels	Program Security	Default Clock Rate	Optional Clock Rate	Reset active-low or-high?	Max. freq. [MHz]	Freq. range (MHz)	Freq. range MHz at 5V	Temp. range options	Package	Comments/Special Features	
	FLASH	OTP / ROM	RAM	ICP / PP	ISP / IAP	# of Timers	PWM	RTC / System Timer / WD	UART	I <sup>2</sup> C	SPI													
<b>Mx2 Devices</b>																								
P87C51MC2/02	—	96 K	3 K	—	—	4	—	✓	2	—	✓	34	13(2)/4	✓	6-clk	—	H	24	0-12	0-24	B	PLCC44	16 MB data/code addr. range; 2 UARTs, SPI, P4 I/O	
P87C51MB2/02	—	64 K	2 K	—	—	4	—	✓	2	—	✓	34	13(2)/4	✓	6-clk	—	H	24	0-12	0-24	B	PLCC44	16 MB data/code addr. range; 2 UARTs, SPI, P4 I/O	
<b>66x Devices</b>																								
P89C669	96 K	—	2 K	-/Y	Y/Y	4	✓	✓	2	✓	—	32	13(2)/4	✓	6-clk	—	H	24/-	—	0-24	B	PLCC44	51MX core, 16 MB data/code addr. range; 2 UARTs, I <sup>2</sup> C, no P4	
P89C668	64 K	—	8 K	-/Y	Y/Y	4	✓	✓	✓	✓	—	32	8(2)/4	✓	6-clk	12-clk	H	20/33	—	0-20/33	B, F	PLCC44, LQFP44	6-clk default, 12-clk option; 5V ISP/IAP Flash	
P89C664	64 K	—	2 K	-/Y	Y/Y	4	✓	✓	✓	✓	—	32	8(2)/4	✓	6-clk	12-clk	H	20/33	—	0-20/33	B, F	PLCC44, LQFP44	6-clk default, 12-clk option; 5V ISP/IAP Flash	
P89C662	32 K	—	1 K	-/Y	Y/Y	4	✓	✓	✓	✓	—	32	8(2)/4	✓	6-clk	12-clk	H	20/33	—	0-20/33	B, F	PLCC44, LQFP44	6-clk default, 12-clk option; 5V ISP/IAP Flash	
P89C660	16 K	—	512 B	-/Y	Y/Y	4	✓	✓	✓	✓	—	32	8(2)/4	✓	6-clk	12-clk	H	20/33	—	0-20/33	B, F	PLCC44, LQFP44	6-clk default, 12-clk option; 5V ISP/IAP Flash	
<b>66xX2 Devices</b>																								
P87C661X2	—	16 K	512 B	—	—	4	✓	✓	✓	✓	2	—	32	9(2)/4	✓	12-clk	6-clk	H	30/33	0-30/33	0-30/33	B	PLCC44, LQFP44	87C660X2 with two I <sup>2</sup> C interfaces
P87C660X2	—	16 K	512 B	—	—	4	✓	✓	✓	✓	—	32	8(2)/4	✓	12-clk	6-clk	H	30/33	0-16	0-30/33	0-30/33	B, F	PLCC44, LQFP44	OTP version of 89C660; 12-clk default, 6-clk option

### ACRONYM LEGEND:

IAP = In-Application Programmable Flash  
 (using off-board programmer)  
 ISP = In-System Programmable Flash  
 PP = Parallel Programmable Flash  
 (via parallel programmer)  
 OTP = One-Time Programmable (EPROM)

ICP = In-Circuit Programmable  
 (using off-board programmer)  
 POR = Power-On Reset  
 KBI = Keyboard Interrupt Inputs  
 BOD = Brown-out detect  
 I<sup>2</sup>C = Inter-Integrated Circuit Bus

CAN = Controller Area Network  
 PCA = Programmable Counter Array  
 ADC = Analog-to-Digital Converter  
 DAC = Digital-to-Analog Converter  
 PWM = Pulse Width Modulation  
 AC = Analog Comparator

### TEMPERATURE LEGEND:

Temp. Range Options:  
 B = 0 to +70°C, F = -40 to +85°C, H = -40 to +125°C, J = -40 to +105°C.  
 Not all package/temperature/voltage/frequency combinations are available.  
 For most parts "3 V" voltage range is 2.7 V - 5.5 V and "5 V" voltage range is 4.5 V - 5.5 V. Check data sheet for details.



80C51 Family continued

Type	Memory					Timers				Serial interfaces				ADC channels / bits	I/O pins	Interrupts (Ext) Levels	Program Security	Default Clock Rate	Optional Clock Rate	Reset active-low or-high?	Max. freq. [MHz]	Freq. range (MHz)	Freq. range MHz at 5V	Temp. range options	Package	Comments/Special Features
	FLASH	RAM	OTP / ROM	ICP / PP	ISP / IAP	# of Timers	PWM	RTC / System Timer	WD	UART	I <sup>2</sup> C	CAN	SPI													
<b>Rx2 Devices</b>																										
P89LV51RD2	64 K	1 K	—	-Y	Y/Y	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	33	—	33	B, F	DIP40, PLCC44, LQFP44	Operating Voltage 3 V ± 10%	
P89LV51RC2	32 K	1 K	—	-Y	Y/Y	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	33	—	33	B, F	DIP40, PLCC44, LQFP44	Operating Voltage 3 V ± 10%	
P89LV51RB2	16 K	1 K	—	-Y	Y/Y	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	33	—	33	B, F	DIP40, PLCC44, LQFP44	Operating Voltage 3 V ± 10%	
P89V51RD2	64 K	1 K	—	-Y	Y/Y	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	33	—	33	B, F	DIP40, PLCC44, LQFP44	Same as P89LV51RD2, but Operating Voltage 5 V ± 10%	
P89V51RC2	32 K	1 K	—	-Y	Y/Y	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	33	—	33	B, F	DIP40, PLCC44, LQFP44	Operating Voltage 3 V ± 10%	
P89V51RB2	16 K	1 K	—	-Y	Y/Y	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	33	—	33	B, F	DIP40, PLCC44, LQFP44	Operating Voltage 3 V ± 10%	
P89C51RD2/01	64 K	1 K	—	-Y	Y/Y	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	20/33	—	0-20/33	B, F	DIP40, PLCC44, LQFP44	12-clk default, 6-clk option; 5V ISP/IAP Flash, 4K blocks RD2 in OTP	
P87C51RD2	—	1 K	64 K	—	—	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	30/33	0-16	0-30/33	B, F	DIP40, PLCC44, LQFP44	12-clk default, 6-clk option; 5V ISP/IAP Flash, 4K blocks RC2 in OTP	
P89C51RC2/01	32 K	512 B	—	-Y	Y/Y	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	20/33	—	0-20/33	B, F	DIP40, PLCC44, LQFP44	12-clk default, 6-clk option; 5V ISP/IAP Flash, 4K blocks	
P87C51RC2	—	512 B	32 K	—	—	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	30/33	0-16	0-30/33	B, F	DIP40, PLCC44, LQFP44	12-clk default, 6-clk option; 5V ISP/IAP Flash, 4K blocks RB2 in OTP	
P89C51RB2/01	16 K	512 B	—	-Y	Y/Y	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	20/33	—	0-20/33	B	PLCC44, LQFP44	12-clk default, 6-clk option; 5V ISP/IAP Flash, 4K blocks	
P87C51RB2	—	512 B	16 K	—	—	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	30/33	0-16	0-30/33	B	DIP40, PLCC44, LQFP44	12-clk default, 6-clk option; 5V ISP/IAP Flash, 4K blocks RA2 in OTP	
P89C51RA2/01	8 K	512 B	—	-Y	Y/Y	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	20/33	—	0-20/33	B	PLCC44, LQFP44	12-clk default, 6-clk option; 5V ISP/IAP Flash, 4K blocks	
P87C51RA2	—	512 B	8 K	—	—	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	✓	12-clk	6-clk	H	30/33	0-16	0-30/33	B	PLCC44, LQFP44	12-clk default, 6-clk option; 5V ISP/IAP Flash, 4K blocks	
<b>55x Devices</b>																										
P8xC552	—	256 B	8 K	—	—	3	✓	—	✓	✓	—	—	8/10	48	15(6)/4	✓	12-clk	—	H	-/24	0-16	3.5-24	B, F, H	PLCC68, QFP80	6-clk only; LQFP64 only; 7 ADC channels	
P8xC554	—	512 B	16 K	—	—	3	✓	—	✓	✓	—	—	7/10	48	15(6)/4	✓	6-clk	—	H	16/-	0-8	0-16	B, F	LQFP64	12-clk only; PLCC68 only; 8 ADC channels	
P8xC554	—	512 B	16 K	—	—	3	✓	—	✓	✓	—	—	8/10	48	15(6)/4	✓	12-clk	—	H	-/16	0-16	0-16	B, F	PLCC68	12-clk only; PLCC68 only; 8 ADC channels	
<b>80C51X2 Devices</b>																										
P89C6xX2	64 K	512 B/1 K	—	-Y	Y/-	3	—	—	✓	✓	—	—	—	32	6(2)/4	—	12-clk	6-clk	H	20/33	—	0-20/33	B	PLCC44, LQFP44	89C58 upgrade w/low-end ISP	
P8xC58X2	32 K	256 B	32 K	-Y	—	3	—	—	✓	✓	—	—	—	32	6(2)/4	—	12-clk	6-clk	H	20/33	0-16	0-20/33	B, F	DIP40, PLCC44, LQFP44	5V Flash/OTP part; 12-clk def., 6-clk opt. (switch by SW or par. progr.)	
P8xC54X2	16 K	256 B	16 K	-Y	—	3	—	—	✓	✓	—	—	—	32	6(2)/4	—	12-clk	6-clk	H	30/33	0-16	0-30/33	B, F	DIP40, PLCC44, LQFP44	5V Flash/OTP part; 12-clk def., 6-clk opt. (switch by SW or par. progr.)	
P8xC52X2	8 K	256 B	8 K	-Y	—	3	—	—	✓	✓	—	—	—	32	6(2)/4	—	12-clk	6-clk	H	20/33	—	0-20/33	B, F	DIP40, PLCC44, LQFP44	5V Flash/OTP part; 12-clk def., 6-clk opt. (switch by SW or par. progr.)	
P8xC51X2	4 K	128 B	4 K	-Y	—	3	—	—	✓	✓	—	—	—	32	6(2)/4	—	12-clk	6-clk	H	20/33	0-16	0-20/33	B, F	DIP40, PLCC44, LQFP44	5V Flash/OTP part; 12-clk def., 6-clk opt. (switch by SW or par. progr.)	
P80C32X2	—	256 B	—	—	—	3	—	—	✓	✓	—	—	—	32	6(2)/4	—	12-clk	6-clk	H	30/33	0-16	0-30/33	B, F	DIP40, PLCC44	ROMless part; 12-clk default, 6-clock option (switch by SW)	
P80C31X2	—	128 B	—	—	—	3	—	—	✓	✓	—	—	—	32	6(2)/4	—	12-clk	6-clk	H	30/33	0-16	0-30/33	B	DIP40, PLCC44, LQFP44	ROMless part; 12-clk default, 6-clock option (switch by SW)	
<b>CAN Devices</b>																										
P8xC591	—	512 B	16 K	—	—	3	✓	—	✓	✓	✓	—	6/10	32	15(6)/4	—	6-clk	—	L	12/-	—	0-12	F	PLCC44, PQFP44	CAN 2.0B, baud rate generator for UART	
P8xC592	—	512 B	16 K	—	—	3	✓	—	✓	✓	✓	—	8/10	48	15(6)/2	—	12-clk	—	H	-/16	—	1.2-16	F, H	PLCC68	CAN V2.0A, five 8-bit I/O ports	
P8xC598	—	512 B	16 K	—	—	3	✓	—	✓	✓	✓	—	8/10	48	15(6)/2	—	12-clk	—	H	-/16	—	1.2-16	F, H	QFP80	CAN V2.0A, five 8-bit I/O ports, "E"=lower EMI (more V <sub>SS</sub> pins)	
<b>Rx+ Devices</b>																										
P8xC51Rx+	—	512 B/1 K	16-64 K	—	—	4	✓	✓	✓	✓	—	—	—	32	7(2)/4	—	12-clk	—	H	-/33	0-16	0-33	B, F	DIP40, PLCC44, QFP44	Please use 8xC51RD2 /01 for new designs	
<b>Fx Devices</b>																										
P8xC51Fx	—	256 B	8-32 K	—	—	4	✓	✓	—	✓	—	—	—	32	7(2)/4	—	12-clk	—	H	-/33	0-16	0-33	B, F	DIP40, PLCC44, QFP44	Please use 8xC51RD2 /01 for new designs	

www.philips.com/microcontrollers



Philips Semiconductors

Philips Semiconductors is a worldwide company with over 100 sales offices in more than 50 countries. For a complete up-to-date list of our sales offices please e-mail sales.addresses@www.semiconductors.philips.com. A complete list will be sent to you automatically. You can also visit our website <http://www.semiconductors.philips.com/sales>

© Koninklijke Philips Electronics N.V. 2004

All rights reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent- or other industrial or intellectual property rights.

Published in U.S.A.

Date of release: Noember 2004  
document order number: 9397 750 13987